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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/405,848	09/27/1999	TOSHIO NORITA	48864-021	9972

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EXAMINER

AGGARWAL, YOGESH K

ART UNIT PAPER NUMBER

2615

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/405,848	Applicant(s) NORITA ET AL.	
	Examiner Yogesh K Aggarwal	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 16-23 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 is/are allowed.
- 6) ☒ Claim(s) 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Suzuki et al. (US Patent # 4,621,191).

[Claim 11]

Applicant's own admitted prior art teaches a three-dimensional input apparatus comprising a projector for irradiating a detection light beam on an object (Page 1 lines 26-30), a scanning mechanism for scanning said object by deflecting the direction of irradiation of said detection light beam (Page 2 lines 1-19), an image sensing device with an image sensing surface including a plurality of two-dimensionally arranged light-receiving elements, for receiving the detection light beam reflected on said object (Page 3 lines 15-18). Applicant's admitted prior art fails to teach a controller for controlling the electric charge accumulation time of said light-receiving elements such that a plurality of types of outputs with different electric charge accumulation times are produced by said light receiving elements, and selecting said non-saturated signals among said plurality of types of output signals. However Suzuki teaches a controller (drive circuit 7) which controls the electric charge accumulation time of the photoelectric element arrays S_a and S_b such that three different types of outputs with different electric charge accumulation times can be generated (T1, T2 and T3) and T2 which is a region of unsaturation can be selected out of three outputs (col. 4 lines 11-22, figure 6) in order to increase the dynamic

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range. Therefore taking the combined teachings of Applicant's admitted prior art and Suzuki, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller for controlling the electric charge accumulation time of said light-receiving elements such that a plurality of types of outputs with different electric charge accumulation times are produced by said light receiving elements, and selecting said non-saturated signals among said plurality of types of output signals in order to increase the dynamic range as compared to T1.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Suzuki et al. (US Patent # 4,621,191) as applied to claim 11 above in further view of Kazama et al. (US Patent # 5,883,668).

[Claim 12]

Applicant's admitted prior art in view of Suzuki fail to teach "wherein said controller controls said image sensing device so as to output a signal corresponding to the accumulated electric charge upon lapse of a first accumulation time and continue to accumulate electric charge while maintaining said accumulated electric charge until a second charge accumulation time".

However Kazama et al. teaches a non-destructive readout technique in which there is a mix of pixels that were read before the update and pixels that were not read before the update which means the former pixels have underwent the reset operation and that the latter pixels have accumulated charge for a long period of time without undergoing the reset operation (col. 9 lines 23-37) and is read as outputting a signal corresponding to the accumulated electric charge upon lapse of a first accumulation time and continue to accumulate electric charge while maintaining said accumulated electric charge until a second charge accumulation time. Therefore taking the

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combined teachings of Applicant's admitted prior art, Suzuki and Kazama, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that controls said image sensing device so as to output a signal corresponding to the accumulated electric charge upon lapse of a first accumulation time and continue to accumulate electric charge while maintaining said accumulated electric charge until a second charge accumulation time. The benefit of doing so would be so that a non-destructive readout operation can be performed in which only the pixels from which signals have been read are reset to drain accumulated charge as taught in Kazama (col. 9 lines 25-28).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art, Suzuki et al. (US Patent # 4,621,191), Kazama et al. (US Patent # 5,883,668) as applied to claim 12 above in further view of Kusaka et al. (US Patent # 5,589,909).

[Claim 13]

Applicant's admitted prior art, Suzuki and Kazama fail to teach, "wherein said controller selects among said non-saturated signals one having a long electric charge accumulation time".

However Kusaka et al. teaches that if the intensity of the target object is low (read as non-saturated signals) then signals with long charge accumulation are selected (col. 10 lines 57-67).

Therefore taking the combined teachings of Applicant's admitted prior art, Suzuki Kazama and Kusaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that selects among said non-saturated signals one having a long electric charge accumulation time. The benefit of doing so would be so that conditions related to the intensity of light from the target object to be photographed can also be detected as taught in Kusaka (col. 10 lines 60-62).

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5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Suzuki et al. (US Patent # 4,621,191) as applied to claim 11 above in further view of Kusaka et al. (US Patent # 5,589,909).

[Claim 14]

Applicant's admitted prior art in view of Suzuki fail to teach, "wherein said controller selects among said non-saturated signals one having a long electric charge accumulation time".

However Kusaka et al. teaches that if the intensity of the target object is low (read as non-saturated signals) then signals with long charge accumulation are selected (col. 10 lines 57-67).

Therefore taking the combined teachings of Applicant's admitted prior art, Suzuki and Kusaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have a controller that selects among said non-saturated signals one having a long electric charge accumulation time. The benefit of doing so would be so that conditions related to the intensity of light from the target object to be photographed can also be detected as taught in Kusaka (col. 10 lines 60-62).

Allowable Subject Matter

6. Claim 15 is allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to suggest or teach a controller for controlling said image sensing device so as to output a first signal due to a first electric charge accumulation time and a second signal due to a second electric charge accumulation time equal to a predetermined multiple of said first signal during the electric charge accumulation of said image sensing device; and a selecting circuit for selecting said second signal in the case where said second signal has not been saturated and using

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selecting a signal of a size equal to said predetermined multiple of said first signal in the case where said second signal has been saturated; and a processor for performing calculations using the selected signal, said selecting circuit including: a first switch, a second switch, a memory, a comparator and an integrator wherein said first switch receives the first and second signals outputs the first signal to the memory and outputs the second signal to the second switch and to the comparator, the integrator receives the first signal from the memory and outputs the signal of a size equal to said predetermined multiple of said first signal to the second switch, and the comparator compares the second signal to a reference saturation level and outputs a control signal to the second switch to output the second signal where the second signal has not been saturated and to output the signal of a size equal to said predetermined multiple where the second signal has been saturated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA

January 19, 2005


TUAN HO
PRIMARY EXAMINER